

**ANDHRA PRADESH SOLAR POWER CORPORATION PRIVATE LIMITED  
(A J V COMPANY OF GOVT OF ANDHRA PRADESH AND GOVT OF INDIA)**

**ANANTAPURAMU ULTRA MEGA SOLAR PARK (1500 MW)**

**BIDDING DOCUMENT  
FOR THE WORK OF**

**Name of work:** **APSPCL – Galiveedu Solar Park – LAD works – Formation of embankment at veligallu village to provide approach to the farmers to balance agriculture land.**

**SINGLE PART BID  
TENDER SPECIFICATION**

**NOTICE INVITING TENDERS (NIT) NO.  
APSPCL-e-C- 20/2023-24/EE/Civil/APSPCL, Dt. 09.10.2023**

**ANDHRA PRADESH SOLAR POWER CORPORATION PRIVATE LIMITED  
ANANTAPURAMU ULTRA MEGA SOLAR PARK (1500 MW)**

**TENDER NOTICE**

**Tender Notice No. APSPCL-e-C- 20/2023-24/EE/Civil/APSPCL, Dt. 09.10.2023**

1.	Department Name	Andhra Pradesh Solar Power Corporation Private Limited (A J V Company Of Govt. Of Andhra Pradesh And Govt. Of India)
2.	Circle/Division Name	Executive Engineer / Civil / APSPCL / Guntur
3.	Tender Notice No.	<b><u>APSPCL-e-C- 20/2023-24/EE/Civil/APSPCL, Dt. 09.10.2023</u></b>
4.	Name of Work	<b>APSPCL – Galiveedu Solar Park – LAD works – Formation of embankment at veligallu village to provide approach to the farmers to balance agriculture land.</b>
5.	Estimated Contract Value (Approximately)	<b>Rs. 29,99,800/- (Rupees Twenty Nine Lakh Ninety Nine Thousand and Eight Hundred Only)</b>
6.	Period of Contract	1 Month
7.	Form of Contract	L.S
8.	Tender Type	Open
9.	Tender Category	Works
10.	Transaction Fee Payable to MD/APTS payable at Vijayawada (including GST)	<b>Rs. 1,062/- (Rupees One Thousand and Sixty Two Only)</b>
11.	Bid Security (EMD)	<b>Rs. 30,000/- (Rupees Thirty Thousand Only)</b>
12.	Bid Security Payable to	By way of online payment in favour of Managing Director/APSPCL/ Tadepalli.
13.	Process Fee	Not Applicable
14.	Schedule Available Date & Time	<b>09.10.2023, 5.00 P.M.</b>
15.	Schedule Closing Date & Time	<b>16.10.2023, 4.00 P.M.</b>
16.	Bid Submission closing Date & time	<b>16.10.2023, 5.00 P.M.</b>
17.	Bid Submission	<b><u>Online</u></b>
18.	Bid Validity	180 days from the date of opening of the Bid
19.	Pre Bid Meeting	Not Applicable
20.	Pre Qualification/ Technical Bid Opening Date (Qualification and Eligibility Stage)	<b>No separate technical bids are required. The bidder shall submit qualification details along with price bid. The price bids will be opened only for those who meet the eligibility criteria.</b>
21.	Price Bid Opening Date & Time	<b>17.10.2023, 03.00 P.M. (The price bids will be opened after verification of eligibility criteria)</b>
22.	Eligibility Criteria	<b><u>1. Registration</u></b> (i) The bidder shall be registered as Class - IV (Civil) or above in any State/Central Govt. or any State/Central PSU etc. (ii) Registration under process shall not be accepted.

		<p><b>2. General Responsibility for correctness of the information submitted in the online bid lies with bidder. If any information furnished in the bid is proved to be false at a later date, the bid will not only be rejected but the bidder will be BLACKLISTED.</b></p>
23.	Place of Opening of Tenders	In the chambers of Executive Engineer/ Civil/APSPCL, Flat no: 501, 5 <sup>th</sup> Floor, Garuda Enclave, Beside TG Plaza, Tadepalli, Guntur-522501.
24.	Officer Inviting Bids	Executive Engineer/Civil/APSPCL/Guntur.
25.	Address &Contact Details	Executive Engineer/ Civil/APSPCL, Flat No. 501, 5 <sup>th</sup> Floor, Garuda Enclave, Beside TG Plaza, Tadepalli (V&M), Guntur District-522501. Phone: +91-9848113328. E-Mail: <a href="mailto:eecivil.apspl@gmail.com">eecivil.apspl@gmail.com</a>
26.	Procedure for bid submission	<p>a) The tender should be in the prescribed forms which can be obtained from 'e' procurement platform from the date of electronic publication up to the time and date indicated in the tender notice. The intending bidders shall enroll themselves on the 'e' procurement market-place <a href="http://www.apecprocurement.gov.in">www.apecprocurement.gov.in</a> Those contractors who register themselves in the 'e' procurement market place can download the tender schedules at free of cost. The bidders shall authenticate the bid with his digital certificate for submitting the bid electronically on 'e' procurement platform <b>and the bids not authenticated by digital certificate of the bidder will not be accepted on the e-procurement platform</b> following the G.O.Ms.No.6, I.T&amp;C Department, dated. 28-02-05.</p>
		<p>b) Intending bidders can contact office of the Executive Engineer/ Civil/APSPCL/Tadepalli/ Guntur – 522501 for any clarification/information on any working day during working hours</p> <p>c) The bidders who are desirous of participating in e-procurement shall submit their bids etc., in the standard formats prescribed in the tender documents, displayed at "e" market place. The bidders should invariably upload the statement showing the list of documents etc., in the "e" market place in support of their Technical bids. The bidder should upload scanned copies of all relevant certificates. The bidder shall sign on all the statements, documents, certificates, uploaded by him, owning responsibility for their correctness / authenticity.</p> <p>d) The Bidder shall authenticate the bid with his digital certificate for submitting the bid electronically on e-Procurement Platform and the bids not authenticated by Digital certificate of the bidder will not be accepted on the e-Procurement platform.</p> <p>e) The Department shall carry out the bid evaluation solely based on the uploaded documents, online payment towards EMD in the e-procurement system.</p> <p>f) The Department will notify the successful bidder for submission of original hard copies of all uploaded documents, prior to issue of LOI.</p> <p>h) The successful bidder shall invariably furnish the Original Certificates/documents of the uploaded scanned copies to the Tender Inviting Authority before stipulated time given to him either personally or through courier or post and the receipt of the same within the stipulated date shall be the responsibility of</p>

		<p>the successful bidder. The Department will not take any responsibility for any delay in receipt/non-receipt of certificates /documents, from successful bidder before the stipulated time. On receipt of documents, the Department shall ensure the gentility of all certificates documents uploaded by the bidder in e-procurement system in support of the qualification criteria before issue of LOI.</p> <p>i) If any successful bidder fails to submit the original hard copies of uploaded certificates/documents within the stipulated time or if any variation is noticed between the uploaded documents and the hard copies submitted by the bidder, the successful bidder will be suspended from participating in the tenders on e-procurement platform for a period of 3 years.</p>
		<p>The e-procurement system would deactivate the user ID of such defaulting successful bidder based on the trigger /recommendation by the Tender Inviting Authority in the system. Besides this, the department shall invoke all processes of law including criminal prosecution of such defaulting bidder as an act of extreme deterrence to avoid delays in the tender process for execution of the development schemes taken up by the Government.</p>
27.	Statutory Requirements	<p>The tenderer shall fulfill the following statutory requirements.</p> <p><b>a) <u>Labour Rules and Regulations</u></b> The tenderer shall comply with all statutory labour rules and regulations for EPF, GIS/ESI, Labour cess, Contract labour rules, Workmen compensation etc., as may be applicable.</p> <p><b>b) <u>GST</u></b> The tenderer should have registration under GST in the state of Andhra Pradesh from concerned department. The rates are exclusive of GST. Applicable GST on date will be allowed on the work done price against submission of GST invoice.</p>
28.	Other Payments to be made	<p>Apart from the Bid Security (EMD) the tenderer shall be liable to pay the following amounts:</p> <p><b>a) <u>Transaction Fee:</u></b> The participating bidders have to pay transaction fee of 0.03% (subjected to a maximum of Rs. 10,000.00) on estimated contract value of work with GST @ 18% i.e., <b>Rs. 1,062/- (Rupees One Thousand and Sixty Two Only)</b> in favour of MD/APTS payable at Vijayawada at the time of bid submission electronically.</p> <p><b>b) <u>Corpus Fund:</u></b> Successful bidder has to pay Corpus fund @ 0.04% (subjected to a maximum of Rs. 10,000.00 for works with ECV/QV up to Rs 50.00 Crores and Rs 25,000.00 for works with ECV/QV more than Rs 50.00 Crores) through Online Payment in favour of Managing Director, APTS, Vijayawada towards corpus fund at the time of concluding agreement.</p>
29.	Documents to be submitted to the Tender inviting authority.	<p>All the bidders shall upload the scanned copies of the following documents on e-procurement system</p> <ol style="list-style-type: none"> <li>1) Online payment for EMD amount – This will be the primary requirement to consider the bid responsive. – Mandatory.</li> <li>2) Contractor registration certificate – Mandatory.</li> </ol>

		<p>Other optional documents:</p> <ol style="list-style-type: none"> <li>1. Registration copies of EPF, ESI/Insurance.</li> <li>2. IT Returns, GST &amp; PAN Registration.</li> </ol> <p>Note:</p> <ol style="list-style-type: none"> <li>1. The tenderer is liable to be disqualified, if he is found to have misled or furnished false information in the forms/ Statements/Certificates submitted in proof of qualification requirements and record of performance such as abandoning of work, not properly completing of earlier contracts, inordinate delay in completion of works, litigation history, financial failures and or participated in the previous tendering for the same work and has quoted unreasonable high price etc.</li> <li>2. Even while executing the work, if found that the contractor had produced false/fake certificates, he will be black listed and the contract will be terminated and his Bid security will be forfeited and work will be carried out through other agency at his cost and risk.</li> </ol>
30	Other relevant information	<ol style="list-style-type: none"> <li>1. APSPCL reserves the right to reject any or all the tenders without assigning any reasons thereof.</li> <li>2. APSPCL reserves the right to amend or modify the tender and its conditions before <b>13.10.2023</b>, 4.00 P.M. (The details will be updated in APSPCL web site)</li> <li>3. Any other condition regarding receipt of tenders in conventional method appearing in the tender documents may please be treated as not applicable.</li> <li>4. The contractors have to upload the information preferably in Zip format.</li> <li>5. The contractors should upload the documents duly signing each and every paper.</li> </ol> <p>For all clarifications &amp; guidance, the bidders may contact the Executive Engineer/ Civil/APSPCL/Tadepalli/ Guntur – 522 501.</p>

**Sd/-**  
**EXECUTIVE ENGINEER/CIVIL**

To  
The Bidders through paper notification/web publication.

**Copy submitted to**

The Managing Director & CEO/APSPCL for favour of perusal.

**Copy to:**

- 1) Notice Board.
- 2) The Chief Financial Officer./APSPCL/Tadepalli for information.
- 3) The Deputy Executive Engineer/Civil/APSPCL/N.P.Kunta for information.
- 4) The Deputy Executive Engineer/Elec/APSPCL/Kurnool for information.
- 5) The Deputy Executive Engineer/Civil/APSPCL/Kadapa for information.

## TENDER FORM

**To  
The Managing Director,  
APSPCL, Tadepalli,  
Guntur – 522501.**

**Sir,**

I/We do hereby tender and, if this tender be accepted undertake to execute the work of **"APSPCL – Galiveedu Solar Park – LAD works – Formation of embankment at veligallu village to provide approach to the farmers to balance agriculture land."** as shown in the drawings and as described in the specifications deposited in the office of the **Executive Engineer/ Civil/ APSPCL, Tadepalli, Guntur- 522501** with such variations by way of, alterations or additions to, and omissions from the said work and method of payment as are provided for in the "Conditions of Contract" **at the estimated contract value (ECV) PLUS (or) MINUS %** or such other sum as may be arrived at under the clause of the standard preliminary specification relating to "Payment on lump sum basis or final measurements at unit prices".

I/We agree to execute the work when the lump sum payment under the terms of agreement is varied by payment on measurement quantities.

I/We agree to keep the offer in this tender valid for a period of 180 days from the date of opening of tender and not to modify the whole or any part of it for any reason within the above period. If the tender is withdrawn by me/us for any reason whatsoever, within the validity period, the earnest money deposited by me/us will be forfeited to APSPCL.

I/We hereby distinctly and expressly declare and acknowledge that before the submission of my/our tender, I/We have carefully followed the instructions in the tender notice and have read the APSS and the Preliminary specifications therein and the APSS Addenda volume; and that I/We have made such examination of the contract documents and of the plan, specifications and quantities, and of the locations where the said work is to be done, and such investigation of the work required to be done, and in regard to the materials required to be furnished so as to enable me/us to thoroughly understand the intention of the same and the requirements, covenants, agreements, stipulations and restrictions contained in the contract and in the said plans and specifications and distinctly agree that I/We will not hereafter make any claim or demand upon the APSPCL based upon or arising out of any alleged misunderstanding or misconception or mistake on my/our part of the said requirements, covenants, agreements, stipulations restrictions and conditions.

If my/our tender is accepted, the earnest money shall be retained by the APSPCL as security for the due fulfillment of this contract. If upon written intimation to me/us by the Executive Engineer/Civil/APSPCL/Guntur, I/We fail to attend the said office before the end of the period specified on such intimation the tender will not be considered and if, upon intimation being given to me/us by the Executive Engineer/ Civil/APSPCL/Guntur of acceptance of my/our tender, I/We fail to make the additional security deposit or to enter into the required agreement as defined **in clause 5 of the detailed tender conditions**, then I/We agree to the forfeiture of the Earnest money; Any notice required to be served on me/us here under shall be sufficiently served on me/us personally or forwarded to me/us by post (registered or ordinary) or left at my/our address given herein. Such notice if sent by post be deemed to have been served on me/us at the time when in due course of post, it would have been delivered at the address to which it was sent.

I/We fully understand that the written agreement to be entered into between me/us and the APSPCL shall be the foundation of the rights of both of the parties and the contract shall not be deemed to be completed until the agreement has first been signed by me/us and then by proper officer authorized to enter into contracts on behalf of APSPCL.

I/We am/are professionally qualified and my/our qualifications are given below.

S.No.	Name	Qualifications

I/We will employ at my/our own cost at least **1 (One) number Graduate Engineer** and other technically qualified staff in adequate numbers on full time basis and see that they are available at work site during working hours and also whenever required by the Engineer in-charge to take instructions and for arranging efficient and expeditious execution of work to the satisfaction of the Engineer-in-charge. In case we fail to employ the above mentioned technical staff we are agreeable for the recovery towards such default to be made from our bills at the rate of **Rs.50,000/- (Rupees Fifty Thousand only) per month or part thereof.**

The APSPCL directs that in the case of both Lump sum and K2 contract of Rs. 50,000 and above in value, the contractor irrespective of his class shall be required to employ the personnel on the concerned works at his own cost whether technical skill is required or not.

The appointment of staff shall be on full time basis and they shall be available at the work site whenever required by the Engineer-in-charge to take instructions. The contractor shall deploy required technical personal in addition to the above as per actual needs and as directed by the Engineer-in-charge.

I/ We have accepted the rate of progress i.e., the construction programme for the work as envisaged in this tender specification.

#### **PRE-QUALIFICATION REQUIREMENTS**

- Not Applicable.

## DETAILED TENDER NOTICE

1. Tenders in single part for the work of "**APSPCL – Galiveedu Solar Park – LAD works – Formation of embankment at veligallu village to provide approach to the farmers to balance agriculture land.**" should be in the prescribed form which can be obtained from 'e' procurement platform from the date of electronic publication up to the time and date indicated in the tender notice. The intending bidders shall enroll themselves on the 'e' procurement market-place [www.apecprocurement.gov.in](http://www.apecprocurement.gov.in). Those contractors who register themselves in the 'e' procurement market place can download the tender schedules free of cost. The bidder shall authenticate the bid with his digital certificate for submitting the bid electronically on e- procurement platform **and the bids not authenticated by digital certificate of the bidder will not be accepted on the e-procurement platform** following the G.O.Ms.No.6, I.T&C Department, dated. 28.02.2005.

The intending bidders can download tender specification and submit their tenders online at e-procurement market place viz., [www.apecprocurement.gov.in](http://www.apecprocurement.gov.in). **The tender forms can be downloaded up to 4.00 PM on 16.10.2023. Bids can be submitted up to 5.00 PM on 16.10.2023 as per NIT.**

The Price Bids will be opened through e-procurement platform by the **Executive Engineer/Civil/APSPCL/Tadepalli on 17.10.2023 from 3.00 P.M** onwards as per NIT in his chambers at the address Flat no: 501, 5th Floor, Garuda Enclave, beside TG Plaza, Tadepalli, Guntur-522501. If the tender opening day happens to be a holiday the tenders will be opened at the same timings mentioned above on the next working day. The tenderers or their authorized agents are expected to be present at the time of opening of tenders.

Intending bidders can contact office of the *Executive Engineer/Civil/APSPCL/Guntur* for any clarification/ information on any working day during working hours

The bidders who are desirous of participating in e- procurement shall submit their Technical bid/Price bid etc., in the standard formats prescribed in the tender documents, displayed at "e" market place [www.apecprocurement.gov.in](http://www.apecprocurement.gov.in). The bidders should invariably upload the statement showing the list of documents etc., in the "e" market place in support of their Technical bids. The bidder should load scanned copies of all relevant certificates. The bidder shall sign on all the statements, documents, certificates, uploaded by him, owning responsibility for their correctness/authenticity. **Responsibility for correctness of the information submitted in the online bid lies with bidder. If any information furnished in the bid is proved to be false at a later date, the bid will not only be rejected but the bidder will be BLACKLISTED.**

The Bidder shall authenticate the bid with his digital certificate for submitting the bid electronically on e-Procurement Platform and the bids not authenticated by Digital certificate of the bidder will not be accepted on the e-Procurement platform.

The Department shall carry out the technical bid evaluation solely based on the uploaded documents in the e-procurement system and open the price bids of the responsive bidders.

The Department will notify the successful bidder for submission of original hard copies of all uploaded documents prior to issue of LOI.

The successful bidder shall invariably furnish the original Certificates documents of the uploaded scanned copies to the Tender Inviting Authority before issue of LOI either personally or through courier or post and the receipt of the same within



the stipulated date shall be the responsibility of the successful bidder. The Department will not take any responsibility for any delay in receipt/non-receipt of certificates/documents from successful bidder before the stipulated time. On receipt of documents, the Department shall ensure the genuinity of the all other certificates documents uploaded by the bidder in e-procurement system in support of the qualification criteria before issue of LOI.

If any successful bidder fails to submit the original hard copies of uploaded certificates/documents within the stipulated time or if any variation is noticed between the uploaded documents and the hard copies submitted by the bidder, the successful bidder will be suspended from participating in the tenders on e-procurement platform for a period of 3 years.

The e-procurement system would deactivate the user ID of such defaulting successful bidder based on the trigger/recommendation by the Tender Inviting Authority in the system. Besides this, the department shall invoke all processes of law including criminal prosecution of such defaulting bidder as an act of extreme of the deterrence to avoid delays in the tender process for execution of the development schemes taken up by the Government.

2. The bidder shall fulfill the following statutory requirements.

a) **Income tax Clearance Certificate:**

**The contractor shall furnish their copy of permanent Account Number (PAN) card and copy of latest income tax returns submitted along with the proof of receipt.**

b) **Labour Rules and Regulations:**

The contractor shall comply with all statutory labour rules and regulations for EPF, GIS/ESI, Labour cess, Contract labour rules, Workmen compensation etc., as may be applicable.

c) **Goods and Services Tax:**

The tenderer should have registration under GST in the state of Andhra Pradesh from concerned department. Applicable GST as on date is 18% of total value of the contract.

3. All the bidders shall invariably upload the scanned copies of the following documents on e-procurement system.

- 1) Online Payment for EMD amount - This will be the primary requirement to consider the bid responsive – Mandatory.
- 2) Contractor registration certificates – Mandatory.

Other Documents to be uploaded:

- 1) Registration copies of EPF, ESI/Insurance.
- 2) IT Returns, GST & PAN Registration.

Bid evaluation of the tenders would be done based on the certificates/ documents uploaded towards qualification criteria furnished by him/them.

In case of proprietary or partnership firm, it will be necessary to produce the certificates afore mentioned for the proprietor or proprietors and for each of the partners, as the case may be.

#### 4. Earnest Money Deposit:

Each bidder must pay Bid Security i.e., Earnest Money Deposit of **Rs.30,000/- (Rupees Thirty Thousand Only)** while submitting their bids. The EMD shall be **paid by way of online payment** in favour of Managing Director/APSPCL and payable at Tadepalli.

- i. The Earnest Money Deposit will be refunded to the unsuccessful tenderer after intimation of the rejection of the tender or at the expiration of 180 days from the date of tender whichever is earlier.
- ii. The Earnest Money will be retained in the case of successful tenderer and will not carry any interest. It will be dealt with as provided in the tender.
- iii. Tenderers are not permitted to withdraw their or his offer once made for a period of 180 days after the opening of the tenders and in the event of such tenderers withdrawing their tenders' within 180 days after opening of tenders, the Earnest Money deposited by him/them will be forfeited by the APSPCL

#### 4.1 In addition to the EMD, the balance amount of total up to 5% of the value of contract shall be paid by the successful tenderer as security deposit by way of Bank Guarantee/Demand Draft from Nationalized Bank approved by APSPCL as per proforma appended at the time of entering into the agreement. The above security deposit shall be furnished within fifteen (15) days from date of receipt of award. Further, 5% of the value of work done will be recovered as retention amount from the running bills for the due fulfillment of the contract.

**The Security deposit (including EMD) & Retention amount will be refunded to the contractor after satisfactory completion of performance guarantee period as all defects shall have been made good according to the true intent and meaning thereof. The guarantee period commences from the date of completion of the work in all respects satisfactorily. These amounts will not bear any interest.**

#### 4.2 Failure to enter into the required agreement or to make the security deposit as defined in the above paragraphs shall entail forfeiture of the earnest money deposit. The written agreement to be entered in between the contractor and the APSPCL shall be the foundation of the rights of both the parties and the contract shall not be deemed to be complete until the agreement has first been signed by the contractor and then by the proper officer authorized to enter into contracts on behalf of APSPCL.

#### 4.3 The work shall be commenced from the dates specified by APSPCL, otherwise EMD will be forfeited.

**If the successful tenderer fails to sign the agreement or otherwise commit default, the APSPCL shall have the right to recover damages according to law apart from forfeiting the earnest money deposit.**

#### 5. Period of contract: **1 Month.**

##### 5.1 Programme of work

The attention of the tenderer is directed to the contract requirements as to the time of beginning the work, the rate of progress and the dates for the completion of the whole work and its several parts.

The programme of work to be done from time to time is indicated below. However, the Executive Engineer / Engineer-in-charge of the work will decide the priority of various items of work and their location and direct the successful tenderer for execution so as to complete the entire work as required.

**The date of commencement of this work will be the date on which the site is handed over to the Contractor.** The agreement shall be concluded before the site is handed over to the contractor or before he draws any materials.

Further, it shall also be noted by the tenderer, if on any account, the work gets dislocated due to the site being not available for work on any day or due to any other reason, it is not binding on the APSPCL to pay any compensation to the contractor, but the corresponding extension of time will be granted to the contractor.

The construction programme for the works envisaged in the specification is indicated below:

<b>S.No.</b>	<b>Period after date of commencement</b>	<b>Cumulative Percentage of the work to be completed based on contract amount</b>	<b>Remarks</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>
1.	1 Month	100 %	

The periods entered in column (3) for the purpose of defining the rate of progress may be altered by the Engineer-in-charge or appropriate authority authorized by APSPCL to suit the requirements of project completion.

If, due to any other reason beyond the control of the contractor, the progress is slow during any period indicated above, the same shall be made up in subsequent periods and the programme shall be complied within minimum possible time.

The Executive Engineer / Engineer -in-charge shall direct the sequence and pace of the parts of the work and the contractor shall comply with them. Payment will be effected as per actual work completed and based on the approved mode of payment.

- 6. TERMS OF PAYMENT:** Payment for running bills shall be made to the contractor progressively, based on certification of the Executive Engineer/ Engineer-in-charge.

***Penalty: Action as per clause 60 and 61 of PS to APSS will be taken by the Executive Engineer / Engineer-in-charge if the contractor fails to adhere to the above programme of work.***

***Due to what so ever reasons, if work gets extended beyond the contract period, an amount equivalent to 5% of running account bill will be recovered in the extended period of contract from the running account bills and release or forfeiture of this in part or full will be dealt as per the approval of competent authority of APSPCL.***

- 7.** The **Executive Engineer/Civil/APSPCL**, or other sanctioning authority reserves the right to reject any tender in full or part or all the tenders without assigning any reason there for. The quoted percentage shall be binding on the tenderer even if the **Executive Engineer/Civil/APSPCL** awards part of the work.

**8. TAXES, DUTIES, TOLLS AND SEIGNIORAGE:**

The contractor shall, unless otherwise specially stated in the tender notice and subsequently on this basis in the contract, be responsible for the payment wherever payable of all import duties, octroi duties, seigniorage, quarry fees etc. on all materials and articles that he may use.

All taxes, duties, seignorage and local cess charges, Turnover etc, except GST, EPF, GIS & Labour Cess payable to the Govt./Quasi Govt. Bodies at the rates as on the date of opening of tender are deemed to be included in the quoted prices. **The applicable GST as on date will be paid extra on submission of GST invoice. The payment of GST is the responsibility of the contractor. Seignorage on metal, sand, gravel etc., and local cess** will be recovered at rates fixed by competent authority from time to time from the contract bills and the same will be remitted to Mines & Minerals Department. However, **Seignorage** charges will not be recovered if the contractor submits the proof of payment of **Seignorage** charges to the concerned department. Statutory variations in the applicable rates or newly introduced taxes/duties, **Seignorage** and local cess will be to APSPCL account subject to the condition that the work has to be completed as per the time schedule stipulated in the contract/agreement.

The percentage less/excess on ECV quoted for the subject work shall be excluding **GST, EPF, GIS, & Labour Cess. EPF & GIS** will be reimbursed by APSPCL on production of proof of actual remittances made and subject to the satisfaction of Engineer-in-Charge that the said contribution done is only for the workers employed on this work. Labour cess will be reimbursed to the contractor as per actual on production of proof of payment as per the building and other construction welfare cess act 1996. APSPCL will not reimburse any excess payment made by the contractor for any of the above due to mis-interpretation of law or any other reason.

No GST will be collected from the contractor for the materials supplied by the APSPCL at free of cost.

Notwithstanding anything contained in Section 10 of the Indian Tariff Act, of 1894, the rates for item involving the use or supply of articles obtained by the contractor from outside India shall remain unaffected by any changes that may be introduced in the Customs duties.

Other taxes and duties levied by the Central/State Govt. prevailing as on the date of opening of tenders shall be to the contractor's account and the percentage less/excess on ECV value quoted shall be inclusive of them. Any increase in taxes and duties shall be to APSPCL's account. If there is any decrease in taxes and duties, credit shall be given to APSPCL to that extent.

The APSPCL will not however be responsible for payment any other tax made by the contractor under misapprehension of law.

## **9. Supplemental Items:**

The contractor is bound to execute all supplemental items beyond 10% of agreement quantity, deductible from similar items in the original agreement and new items that are found essential, incidental and inevitable during execution of main works, at the rates to be worked out as detailed below.

### **a. Fixation of rates for items of work in excess of quantities in Schedule-A Bill of Quantities of tender**

The percentage less/excess on ECV quoted by the tenderer shall hold good up to 10% of quantity over those given in Bill of Quantities. Approval of competent authority is to be obtained for execution of quantities in excess of 10% beyond agreement quantity and supplemental items and new items.

For all items of work which are in excess of 10% over and above the quantities shown in Schedule-A Bill of Quantities of the tender, the rate payable for such excess quantities shall be either agreement rates or sanctioned estimate rates plus or minus overall tender percentage accepted by the competent authority whichever is less.

**b. Supplemental items directly deductible from similar items in the original agreement**

The rates shall be derived by adding to or subtracting from the agreement rates of such similar items, the cost of the difference in quantity of material or labour between the new item and the similar item in the agreement worked out with reference to the schedule of rates adopted in the sanctioned estimate with which the tenders were compared plus or minus overall tender percentage.

**c. New Items:**

i) Similar items, the rates of which cannot be directly deduced from the original agreement.

ii) Purely new items which do not correspond to any item in the agreement.

The rate shall be estimate rate plus or minus overall tender percentage.

**Note:** in the term estimate rate used (i) and (ii) above means the rate in the sanctioned estimate with which the tenders were compared or if no such rate is available in the estimate, the rate derived with reference to the schedule of rates adopted in the sanctioned estimate with which tenders are compared.

**d. Addition of provision towards importation of labour, labour amenities, dewatering etc., in working out supplemental items:**

In respect of new items, the case has to be considered on its merits and provision for importation of labour, labour amenities, dewatering etc., has to be fully justified.

If the new item is in substitution of an old item which allowed for importation of labour, labour amenities, dewatering etc., those factors may be taken into account in computing the substituted items also at the same rates at which they were originally provided.

**10.0** The clause 69 (b) of PS to APSS is deleted. The following may be read in its place:

"Whenever the withheld amount reaches Rs.1,000/- or a multiple thereof, the contractor may, at his option, to deposit with the Engineer-in-charge, an equal amount in sum of Rs.1,000/- or multiples thereof in any of the forms of interest bearing securities recognized for the purpose by A.P. Public Works Accounts Code and subject to the provisions therein contained or a Bank Guarantee of a Nationalized Bank in which case the equivalent withheld amount shall be paid to him forthwith."

The contractor will be permitted to exercise the option in this clause, subject to the condition that the rate of progress contained in the Articles of Agreement is properly maintained.

- 11.0** Preliminary specifications of APSS except clause 73 shall apply to all agreements entered by the contractor with APSPCL and shall form an inseparable condition of the contract. The tenderer is expected to examine closely the relevant specifications of the APSS and the special specifications and ISS before submitting his tender offer.

Note: In case of contradiction between the clauses included in this specification and the clauses of PS to APSS the former will prevail over the latter and is binding on the tenderer.

## **12.0 ARBITRATION**

All or any disputes or differences arising out of or touching the order based on this specification shall be decided by a panel of arbitrators as detailed below and as per arbitration act No.1 of 1990 to the Arbitration Act 1940 amended vide G.O.No.7 dt.19-05-1990.

<b><i>Value of claim</i></b>	<b><i>Panel of Arbitrators</i></b>
Disputes involving amounts up to Rs. 10,000/- and below.	Superintending Engineer of the APGENCO other than the circle to which the disputes relate.
Disputes involving amount from Rs. 10,000/- to Rs. 50,000/-	Any Chief Engineer of the APGENCO other than concerned Chief Engineer.

There shall not be any reference of disputes, the value of which is above Rs.50,000/- to arbitration. The parties shall approach the competent Civil Courts having jurisdiction, if any such disputes shall arise.

### **TENDERER'S AND CONTRACTOR'S CERTIFICATE**

- a) We expressly state that we will be bound by the conditions of PS to APSS and that the contract shall be deemed to be concluded on the receipt of letter of acceptance. If thereafter we do not sign the contract or otherwise commit default, the APSPCL will be at liberty to forfeit the earnest money and recover damages in accordance with law.
- b) We hereby declare that we have perused in detail and examined closely in the APSS all clauses of preliminary specifications and have either examined all the standard specifications for items for which we tender, before we submit such tender and we agree to be bound by and comply with all such specifications for all agreements which we shall execute in the APSPCL. We have signed here below in acknowledgement thereof.
- c) We certify that we have inspected the location of the proposed work before quoting our percentage, we have also inspected the source of materials and network of roads and satisfied ourselves about the quality, availability and transport facilities for required materials through the net work of available roads and path-ways, required for the work and verified the correctness of the leads statement.
- d) We are prepared to furnish detailed data in support of all our quoted percentage, when called upon to do so without any reservations.

#### **Signature of Tenderer/contractor**

Name : \_\_\_\_\_

Designation : \_\_\_\_\_

Company : \_\_\_\_\_

Date : \_\_\_\_\_

**Seal of Company**

## **SECTION - I**

### **SUPPLEMENTAL CONDITIONS TO THE PRELIMINARY SPECIFICATIONS TO THE APSS**

The following conditions shall also be followed in addition to those mentioned in P.S. to the A.P.S.S.

**1. FUNCTIONING OF THE CONTRACT**

The contractor shall carryout all directions and orders issued by the Executive Engineer / Engineer – in – charge connected with the work and shall communicate with him regarding all matters pertaining to the contract.

**2. CONTRACT INCLUDES ALL NECESSARY OPERATIONS**

The contractor is to include the whole of works whether permanent or temporary which are described in or implied by the contract documents, which may be inferred to be obviously necessary for the efficiency, stability and completion of the permanent works, also the performance of all other operations and the supplying of all materials and things described in or implied by the contract documents which may be deemed desirable or required for the completion in all respects of the above works to the entire satisfaction of the Executive Engineer / Engineer – in – charge and all such matters shall be deemed to be included in the contract.

Works shown in the drawings and not mentioned in the specifications or described in the specifications without being shown in the drawings shall nevertheless be held to be included in this contract, in the same manner as if they had been expressly shown in the drawings and described in the specifications also.

**3. OTHER CONTRACTS FOR THE WORK:**

Should the APSPCL enter into other contracts for specified items of the corporate work, each contractor shall co-operate with others to the fullest extent and shall allow each other every facility and co-ordination for execution of their works simultaneously and satisfactorily as intended in the designs, specifications and drawings. Should there be dispute or disagreement between the contractors for any cause whatsoever, the same shall be referred to the Executive Engineer / Engineer – in – charge whose decision regarding the co-ordination, co-operation, and facilities to be provided by any of the contractors to the others shall be final and binding on all parties and such a decision shall not vitiate any contract nor absolve the contractor of his responsibilities under the contract.

**4. SAFETY MEASURES**

The contractors shall take all necessary precautions for the safety of workers and in preserving their health while working in such jobs as require special protection and preventive steps. The following are some of the measures listed but the same are not exhaustive and the contractor shall add to and augment these precautions on his own initiative where necessary and shall comply with the directions issued by the Executive Engineer / Engineer – in - Charge in this behalf from time to time, and at all times.

- i) Providing protective foot wear to workers in site situations like mixing and placing of mortar or concrete in places where the work is done under too much wet conditions.
- ii) Taking necessary steps towards training the workers concerned on the machinery before they are allowed to handle them independently and taking all necessary precautions in and around the areas where machines, hoists and similar units are working.



## SECTION - II

### SITE CONDITIONS

#### 1. LOCATION & GENERAL DESCRIPTION

Anantapuramu Ultra Mega Solar Park at Galiveedu Mandal. Site is situated at Thumukunta & Veligallu Villages about 40 KM from Kadiri. The nearest Railway station is Kadiri. Nearest town is Kadiri. The project information and data is given below:

1.01	Owner / Purchaser	:	Andhra Pradesh Solar Power Corporation Pvt., Limited ( <b>A J V COMPANY OF GOVT OF ANDHRA PRADESH AND GOVT OF INDIA</b> )
1.02	Project Title	:	Anantapuramu Ultra Mega Solar Park – Thumukunta & Veligallu Site.
1.03	Nearest Railway Station	:	Kadiri (40 KM from site)
1.04	Name of Railway	:	South Central Railway
1.05	Nearest Airport	:	Bangalore (181 KM from site)
1.06	Altitude	:	(+) 430 m EL above mean sea level
1.07	Climate	:	Tropical-Hot-Humid
1.08	<b>Ambient Temperature (Dry Bulb)</b>		
	a) Daily maximum (Mean)	:	33.0 Deg. C
	b) Daily minimum (Mean)	:	25.0 Deg. C
1.09	<b>Relative Humidity</b>		
	a) Maximum Humidity	:	64 percent
	b) Minimum Humidity	:	35 percent
	c) Average Humidity	:	49 percent
1.10	<b>Rainfall</b>		
	a) Maximum intensity	:	60 mm per Hour
	b) Annual Average	:	560 mm
	c) Tropical monsoon	:	June to October
1.11	<b>Wind Velocity &amp; Pressure</b> (As per IS: 875-1987 Part III)		
	Basic Wind Speed	:	20 m/sec
1.12	Seismic Zone	:	Zone II as per IS: 1893-2002
1.13	<b>Transport</b>		
	a) Name of highway near which the plant is located	:	Anantapuramu – Chennai High way
	b) Railway (Gauge)	:	Broad Gauge.

#### 2. SITE CONDITIONS

Before submitting the tender, the tenderer shall familiarize himself with the site conditions.

## SECTION – III

### RULES FOR PROVISION OF HEALTH AND SANITARY ARRANGEMENTS TO WORKERS

Rules for the provision of health and sanitary arrangements for workers shall be applicable to all classes of workers. The Contractor's special attention is invited to Clause 37, 38, 39 & 51 of PS to the APSS and he is requested to provide amenities like First Aid, Drinking Water etc at his own expense to the satisfaction of the Executive Engineer-in-Charge.

### SPECIAL CONDITIONS OF CONTRACT

#### 1.0 GENERAL

1.1 The word 'Special Conditions' shall be understood to cover all elements **effective in determining unit prices such as availability of materials**, price of materials, quantity and quality of available labour and their cost, or every other factor whatsoever, of major or secondary importance which has to be accounted for in quoting prices.

1.2 For the work covered by the Technical Specifications (Section IV) the bidder shall quote his percentage less/excess on ECV value based on the Bill of quantities (Schedule 'A') in words and figures.

Said percentage less/excess on ECV value shall bind on the bidders and shall include any expense whatsoever in connection with the delivery of materials at field site, the use of tools and equipment, cost of technical staff and labour and every other charge connected with and incidental to the complete and through execution of work.

1.3 The bidder shall make at his own risk and cost, before submitting his tender, all surveys he might consider necessary and he may carry out any market survey or technical enquiry he might require to check either the suitability of available materials or the site conditions, soil conditions etc. Permission to visit site will be granted to those bidders who have purchased the tender documents.

1.4 The contractor shall note that the scope of work and the quantity of individual items of work may vary to any extent (on the plus or minus side) as necessary during execution. The contractor shall be bound to execute all the works including above variation in quantity of individual items and extra items or additional items of work shall be executed by him as per the relevant clauses of the contract. In awarding the work against the subject specification to the contractor, APSPCL reserves the right to take out of the scope of the contract part of the work. The contractors shall have no claim for loss of profit sustained because some portions of the original contract have been allocated elsewhere nor will this be reason for the contractors to increase/decrease the percentage for the remaining portion of the contract which he shall fulfill in accordance with the contract.

The preliminary estimated quantities given in the Schedule 'A' are not to be taken as binding figures and they may vary to any extent. These quantities have been provided only for the purpose of providing a comparison of various proposals and to give bidder approximate information as to the amount of work to be performed. The total value of work actually carried out shall be measured and paid for.

### 1.5 Technical Specifications

Technical specifications for major items are described in section IV of this document. For those items which may not be covered under Section IV, the contractors shall follow the relevant Indian Standard Specifications (latest edition) with the approval of the Engineer-in-charge/Engineer-in-Charge.

### 1.6 Special Notes

The contractor shall be responsible for any delay and damage except due to force majeure reasons which are generally beyond their control and for this full justification elaborating such circumstances shall be furnished by them.

- 1.7 The contractor shall be under no liability whatsoever for damage or destruction to the work or temporary work or materials and equipment or to property or like which is due to acts of God, earthquake, lightening, gale, typhoon, storm, hurricane, or act of any Government or Strikes or Lockouts or converted action of workmen or civil War (Whether declared or not) or sabotage explosion, Civil commotion, Police action, revolution, epidemics etc., destructive artesian conditions, nuclear fusion, or Radio active disturbances etc., which they have no control and directly or indirectly affecting the operation of the contract.

- 2.0 **Tenders quoted abnormally less, i.e., more than 15%, a B.G obtained in favour Managing Director/APSPCL on the any Nationalized bank or scheduled bank payable at Tadepalli for the difference between the tendered amount and 85% of the estimate value shall be furnished by the contractor invariably as additional security deposit. The period of validity of B.G shall be for a minimum period of six months. This B.G. shall not bear any interest. On successful completion of the work, the B.G. will be returned to the contractor. The period of validity shall be extended by the contractor from time to time till the B.G. is returned.**

In case of contractors failing to complete the work at agreement rates, the B.G. furnished will be forfeited by the APSPCL

## **GENERAL CONDITIONS OF CONTRACT**

### **1.0 DEFINITION & INTERPRETATIONS**

In these general conditions of contract the following terms shall have the meanings assigned to them except where the context otherwise required.

- 1.1 "OWNER/CORPORATION" means Andhra Pradesh Solar Power Corporation Pvt., Limited (A J V Company Of Govt., Of Andhra Pradesh And Govt., Of India) and shall include their legal representative, successors and permitted assignees.
- 1.2 The "Contractor" means the individual or firm or company whether incorporated or not, under taking for execution of works and shall include legal representatives of such individual or persons composing such firms or unincorporated company successors of such firms or company as the case may be, and permitted assignees of such individual or firm or company.
- 1.3 "Contract" means the notice inviting tender, the tender and acceptance there of and the formal agreement, if any, executed between Andhra Pradesh Solar Power Corporation Pvt., Limited and the contractor together with the documents referred to therein including those conditions with appendices and any special conditions, the specifications, designs, drawings, schedule of quantities with rates and amounts and schedule of rates. All these documents taken together shall be deemed to form one contract and shall be complementary to one another.
- 1.4 The "Engineer-in-charge" means the engineering officer appointed by the corporation or his duly authorized representative who shall direct, supervise and be in charge of the works for the purpose of this contract.
- 1.5 "Work" means the works to be executed in accordance with the contract.
- 1.6 "Specifications" means the specifications forming a part of the contract for materials and works for the execution of the contract and as amplified, added or specified by special specifications, if any.
- 1.7 "Site" means the lands and or other place on, under on or through which the work is to be executed under the contract including any other lands or places which may be allotted by the corporation or used for the purpose of the contract.
- 1.8 "Letter of Award" shall mean the official notice issued by the OWNER notifying the contractor that his tender has been accepted.
- 1.9 "Guarantee period" shall mean the period during which the contractor shall remain liable for repair of any defect of the works performed under the contract.
- 1.10 Where the context so requires, words imparting the singular only also include the plural and vice-versa.
- 1.11 Heading & marginal notes to those General conditions shall not be deemed to form part thereof or be taken into consideration in the interpretation or construction there of or of the contract.
- 1.12 All the documents pertaining to the contract including specifications, schedules correspondence etc., shall be written in English language.

## 2.0 **CONTRACTOR TO INFORM HIMSELF THE FOLLOWING:**

- 2.1 The contractor shall be deemed to have carefully examined all contract documents to his entire satisfaction. If he shall have any doubt as to the meaning of any portion of the contract documents, he shall, before signing the contract, set forth the particulars thereof and submit them to the corporation in writing in triplicate, in order that such doubts may be removed. The corporation will provide such clarification as may be necessary in writing to the contractor. Any information otherwise obtained from the corporation or the ENGINEER shall not in any way relieve the contractor of his responsibility to fulfill his obligations under the contract.

## 3.0 **DISCREPANCIES AND ADJUSTMENT OF ERRORS:**

- 3.1 If there are varying or conflicting provisions made in any documents forming part of the contract, the Managing Director shall be deciding authority with regard to the intention of document.
- 3.2 Any error in description, quantity or rate in schedule of quantities or any omission there from shall not vitiate the contract or release the contract from the execution of the whole or any part of the works completed therein according to the specification or from any of his obligations under the contract.
- 3.3 If on check, there found to be differences, between the percentage less/excess on ECV value given by the contractor in words and figures by him in the Schedule of quantities and general summary the same shall be adjusted in accordance with the following rules.
- a) In the event of a discrepancy between description in words and figures quoted by a tenderer, the description in words shall prevail.
  - b) The under signed does not bind himself to accept the lowest or any tender. The undersigned reserves the right to reject any or all tenders without assigning any reason.
  - c) Persons tendering must acquaint themselves and satisfy as to the physical conditions prevailing at the site.
  - d) No telegraphic/Fax offers will be entertained and APSPCL Ltd will not consider any postal delay.
  - e) The APSPCL reserves the right of deleting any or all items of the works mentioned in the schedule without assigning any reasons thereof. The tenderer will not be eligible to claim any sort of compensation in this regard.
  - f) The contractor shall provide to his workmen the required safety appliances including protective clothing and guards such as helmets, safety shoes, hand gloves, masks, safety belts etc., for working in Hazardous areas which shall be identified by the Engineer-in-charge.
  - g) The contractor will be required to work either in hot or cold areas, near machines in operation otherwise involving special care on part of the contractor to see that the work is carried out with safety to the men and machines and without hampering the working of the concerned departments of the corporations.

#### **4.0 SUBLETTING OF WORKS**

- 4.1 The contractor shall not assign or sublet the contract or any part thereof, allow any persons to become interested therein in any manner whatsoever without the special written permission of Executive Engineer / Civil / APSPCL / Tadepalli. The contractor can sublet only up to a maximum of 50% of contract with the prior approval of Executive Engineer / Civil / APSPCL / Tadepalli. Any breach of this condition shall entitle the corporation to rescind the contract and also render the contractor liable for payment to corporation in respect of any loss or damage arising or ensuring from such cancellations. The permitted subletting of work by the contractor shall not establish any contractual relationship between the sub-contractor and corporation and shall not relieve the contractor of any responsibility under the contract. In the event of sufficient dues not being available to reimburse corporation for the expenditure incurred by it for the above contractor shall reimburse corporation for the same.

#### **5.0 ELECTRICAL SAFETY REGULATIONS**

- 5.1 In no circumstances shall the contractor interfere with the fuses and electrical equipment belonging to the APSPCL or other contractors. Before the contractor connects and electrical appliances to any Board or Socket belonging to other contractors or APSPCL shall:
- a) Satisfy and obtain permission of the Engineer-in-charge to that effect.
  - b) No electrical cable used by the contractor will be disturbed without prior permission.
  - c) No weight of any description will be imposed on any such cable and no ladder or equipment will rest against or be attached to it. No work shall carry or any live equipment without PERMIT TO WORK.

#### **6.0 FIRE PROTECTION**

- 6.1 The work procedures that are to be used during the execution of work shall be those, which minimize fire hazards to the extent practicable. Combustible materials, combustible waste and rubbish shall be collected and removed from the site at least once in a day. Fuel oil, volatile or flammable materials shall be stored away from the work areas in safe containers. All the materials such as working drawings, documents etc., which are combustible but essential for the works to be executed shall be protected against combustion resulting from welding sparks, cutting, flanges and other similar fire sources, while doing welding, gas cutting work at elevated levels all care should be taken to protect sparks falling down by providing suitable coverage to avoid free fire and ensuring safety to personnel working in neighborhood.

#### **7.0 SECURITY**

- 7.1 The tenderer/Contractor shall have total responsibility for all equipment and materials in his custody, loose, semi-assembled and/or erected serviced overhauled by him at site. The Tenderer/Contractor shall make suitable security arrangements including deployment of security personnel to ensure the protection all materials, equipment and works from theft, fire, pilferage and any other damages and loss.

## 8.0 DEFECT LIABILITY

The contractor shall be responsible to make good and remedy at his own cost within such a period as may be stipulated by the Engineer-in-charge any defect observed during the course of execution or which may develop or may be noticed before the expiry of the period mentioned in the Guarantee clause on intimation of which has been sent to the contractor within seven days of expiry of the said period by a letter sent by hand or Registered post.

## 9.0 GUARANTEE:

- 9.1 The contractor shall guarantee that all items executed by him shall be free from all defects and workmanship up to completion of work in all respects.
- 9.2 APSPCL shall also be entitled to recover any losses direct or indirect incurred due to non-fulfillment of contractual commitment in this regard.
- 9.3 The Guarantee period shall be 24 (Twenty Four) months from the completion of the works in all respects.

## 10.0 URGENT WORKS

- 10.1 If any urgent work (in respect where for the decision or Engineer-in-charge is final and binding) becomes necessary and the contractor is unable or unwilling at once to carry it out the Engineer-in-charge may by his own or other people, carry it out as he may consider necessary if the urgent work is such as a contractor is liable under the contract to carry out at his expense. All expenses incurred on it by the corporation shall be recoverable from the contractor and be adjusted or set off against any sum payable to him.

## SECTION – IV

### TECHNICAL SPECIFICATIONS

#### 1.00 GENERAL

- 1) This specification is to cover for the proposed work of **"APSPCL – Galiveedu Solar Park – LAD works – Formation of embankment at veligallu village to provide approach to the farmers to balance agriculture land."** promoted by M/s. Andhra Pradesh Solar Power Corporation Pvt., Limited.
  - 2) Description of various items of work under this specification and nature of work in detail are given hereinafter. The complete work under this scope is referred to as CIVIL WORKS. List of various civil works covered given under the scope.
  - 3) The work to be performed under this specification consists of providing all labour, materials, consumables, equipment, temporary works, temporary labour and staff colony, constructional plant, fuel supply, transportation and all incidental items not shown or specified but reasonably implied or necessary for the completion of the work, all in strict accordance with the specifications and including revisions and amendments thereto as may be required during the execution of the work.
  - 4) All materials shall be arranged by the CONTRACTOR.
  - 5) The scope shall also include setting up of complete testing laboratory, by the CONTRACTOR, in the field to carry out all relevant tests required for the civil works for the project.
  - 6) The work shall be carried out according to the approved drawings by the APSPCL. Necessary layout and details are to be developed by the CONTRACTOR keeping in view the statutory & functional requirements and facilities of the proposed work. The quantities given in the Schedule of quantities are approximate and likely to change as per the approved drawings.
  - 7) CONTRACTOR shall inspect the site, examine and obtain all information required and satisfy himself regarding matters and things such as access to site, communications, transport, right of way, the type and number of equipment and facilities required for the work, availability of local labour, materials and their rates, local working conditions, weather, flood levels, subsoil conditions, natural drainage , etc., The contractor shall organize his own arrangements to transport his equipment, men and materials so as to match the construction schedules. Ignorance of the site conditions shall not be accepted by the APSPCL as basis for any claim for compensation or extension of time. The submission of a bid by the CONTRACTOR will be construed as evidence that such an examination was made and any later claims / disputes in this regard to rates/lump sum quoted shall not be entertained or considered by the APSPCL.
- 1.1.** The bidders shall resolve himself the local issues, if any, during the execution without any financial implications to APSPCL.

#### 2.00 Statutory Requirement

CONTRACTOR shall comply with all the applicable statutory rules pertaining to Factory act, Fire safety rule of Tariff Advisory Committee, Water act for Pollution control, Explosives act etc. Provisions of Safety, health and welfare according to Factories act shall also be complied with. Statutory clearances and norms of State Pollution Control Board shall be followed. APSPCL will assist in obtaining the necessary clearances from other departments.



**3.00** The specifications for various works should confirm to the relevant clauses of the APSS, Earth manual of USBR, MORD & MORTH and also to the special specifications included in the tender schedule. If there is any difference between them, the special specifications will be applicable. If for any item of work, detailed specifications are not indicated either in the technical specifications or in the APSS and Earth manual of USBR, MORD & MORTH then that work shall be carried out as per the instructions of Engineer-in-charge. The execution of work and tests to be conducted during construction and on the materials shall confirm to the latest relevant I.S codes.

**4.00 SCOPE OF WORK:**

In general broad scope of work consists of the following:

**1) Formation of embankment with borrowed useful soil.**

The work shall complete in all respects under this specification shall include but not limited to the following.

**5.00 FORMATION OF EMBANKMENT WITH BORROWED USEFUL SOIL:**

The firm shall forming embankment with borrowed useful soil by mechanical means with all leads and lifts including conveyance of soil, pre-watering of soil at borrow area, removal of top soil, excavation of soils at borrowed area, depositing the soils, spreading soils, breaking clods, sectioning and consolidation with Vibratory Road Roller @ OMC to meet requirement of table 300-2 of MORT&H, including all hire and operational charges of T&P etc complete for finished item of work as per MORT&H specification 305 (4th revision). Payment will be made based on level for finished item of work.

**5.01 MODE OF PAYMENT:** The payment shall be made on the basis of Cum.

**SCHEDULE – A****BILLOF QUANTITIES**

- a) The quantities given in the bill of quantities are approximate but they are subject to alterations, omissions, deductions or additions as provided for in the conditions of this contract and do not necessarily show the actual quantities of work to be done. The unit rates noted below are those governing payment of extras or deductions for omissions according to the conditions of the contract as set forth in the preliminary specifications of the A.P. Standard Specifications and other conditions and specifications of this contract.
- b) It is to be expressly understood that the measured work is to be taken net (not withstanding any custom or practice to the contrary) according to the actual quantities when in place and finished according to the drawings or as may be ordered from time to time by the Engineer-in-charge and the cost calculated by measuring or weight at the respective prices without any additional charges for any necessary or contingent works connected therewith.
- c) For all items of work which are more than 10% in excess of the quantities shown in the bill of quantities the rate payable for excess quantities beyond 10% shall be either tender rate or the SS rate for the item plus or minus the overall tender percentage whichever is less. The SS rate means the rate with in the estimate has been prepared for comparison with tenders.
- d) The rates quoted by the contractor are firm till completion of the work in all respects. No price variation of rates is allowed in case of delay in handing over of site to the contactors, if any by the department. However, corresponding extension of time will only be granted to the contactors.

<u>SCHEDULE - A</u>							
<b><u>Name of the work:- APSPCL – Galiveedu Solar Park – LAD works – Formation of embankment at veligallu village to provide approach to the farmers to balance agriculture land.</u></b>							
<b>S. No.</b>	<b>Quantity</b>		<b>Description of item</b>	<b>Rate</b>	<b>Per</b>		<b>Amount</b>
1	10600.00	Cum	Forming embankment with borrowed useful soil by mechanical means with all leads and lifts including cost of soil, seigniorage charges, pre-watering of soil at borrow area, removal of top soil, excavation of soils at borrowed area, cost & conveyance of soil, depositing the soils, spreading soils, breaking clods, sectioning and consolidation with Vibratory Road Roller @ OMC to meet requirement of table 300-2 of MORT&H, including all hire and operational charges of T&P etc complete for finished item of work as per MORT&H specification 305 (4th revision). Payment will be made based on level for finished item of work.	Rs. 283.00	1	Cum	Rs. 29,99,800.00
<b>ESTIMATED CONTRACT VALUE</b>							<b>Rs. 29,99,800.00</b>

Note: The rate shall be exclusive of GST which will be reimbursed as per applicable rates.

**SCHEDULE – B****Issue Rate of material:**

**Name of the Work:** **APSPCL – Galiveedu Solar Park – LAD works – Formation of embankment at veligallu village to provide approach to the farmers to balance agriculture land.**

S.No.	Description of Item	Rate	Source of Supply
1	NIL	NIL	NIL

**SCHEDULE – C****LEAD STATEMENT**

**Name of the Work:** **APSPCL – Galiveedu Solar Park – LAD works – Formation of embankment at veligallu village to provide approach to the farmers to balance agriculture land.**

S.No.	Description of item	Source
1	NIL	NIL

Note: The above information given above is indicative only. The firm shall make his assessment regarding availability of above materials in adequate quantity and quality and the distance of the source etc., before quoting his rates and no claim will be entertained on this account afterwards.

**SCHEDULE – D****LIST OF TENDER PURPOSE DRAWINGS ENCLOSED TO THIS SPECIFICATION**

**Name of the Work:** **APSPCL – Galiveedu Solar Park – LAD works – Formation of embankment at veligallu village to provide approach to the farmers to balance agriculture land.**

S.No	TITLE

**PARTICULARS OF TENDERER**

**Name of the Work:** **APSPCL – Galiveedu Solar Park – LAD works – Formation of embankment at veligallu village to provide approach to the farmers to balance agriculture land.**

Name of the Tenderer/ Contractor:

Name of the contact person responsible for the work:

Designation/ Status of the contact person:

Contact Details of the person responsible for the work:

Mobile Phone No.

Office Phone No.

Residence Phone No.

Any Other Phone No.

Present Address:

Permanent Address:

**BANK GUARANTEE PROFORMA**

**To,  
The Managing Director,  
APSPCL, Tadepalli.**

**Dear Sir,**

<b>Guarantee No</b>	:
<b>Amount of Bank Guarantee</b>	:
<b>Guarantee Cover From</b>	:
<b>Last Date for Lodgment of Claim</b>	:

WHEREAS \_\_\_\_\_ (hereinafter  
called "the Contractor") has undertaken, in pursuance of  
\_\_\_\_\_ for the work of  
\_\_\_\_\_.

AND WHEREAS it has been stipulated by you in the said tender that Rs. \_\_\_\_\_ of  
EMD amount shall be paid by the contractor for participating in the tender.

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee;

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on  
behalf of the Contractor, up to a total of Rs. \_\_\_\_\_, such sum  
being payable in the types and proportions of currencies in which the Contract Price is  
payable, and we undertake to pay you, upon your first written demand and without cavil  
or argument, any sum or sums within the limits of Rs. \_\_\_\_\_  
(amount of Guarantee) as aforesaid without your needing to prove or to show grounds or  
reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor  
before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the  
tender or of the Works to be performed there under or of any of the Contract documents  
which may be made between you and the contractor shall in any way release us from  
any liability under this guarantee and we hereby waive notice of any such change,  
addition or modification.

This Guarantee will remain in force up to and including the date \_\_\_\_\_ any  
demand in respect of this guarantee should reach the Bank not later than the above  
date.

Not with standing anything contained herein above:

1. Our liability under this Bank Guarantee shall not exceed Rs. \_\_\_\_\_.
2. This Bank Guarantee shall be valid upto \_\_\_\_\_.
3. We are liable to pay the Guarantee amount or any part thereof under this bank guarantee only and only if the beneficiary / Govt. serves upon the Bank a written claim or demand on or before \_\_\_\_\_ (date of expiry of Guarantee).

It is in the best interest of the beneficiaries to check up the genuiness of the Guarantee with the branch you may contact us and you may confirm the guarantees through fax.

DATE:

SIGNATURE OF THE BANK

SEAL

Witness 1 :  
(Name & Address)

Witness 2 :  
(Name & Address)

### **BANK ACCOUNT MANDATE FORM**

#### **ELECTRONIC CLEARING SERVICE (CREDIT CLEARING)/REAL TIME GROSS SETTLEMENT (RTGS) FACILITY FOR RECEIVING PAYMENTS**

**A. DETAILS OF ACCOUNT HOLDER:**

<b>NAME OF ACCOUNT HOLDER</b>	
<b>COMPLETE CONTACT ADDRESS</b>	
<b>TELEPHONE NUMBER/FAX/E.MAIL</b>	

**B. BANK ACCOUNT DETAILS :**

<b>NAME OF THE BANK</b>	
<b>BRANCH NAME &amp; ADDRESS</b>	
<b>WHETHER THE BRANCH IS COMPUTERISED?</b>	
<b>WHETHER THE BRANCH IS RTGS ENABLED ? IF YES, THEN WHAT IS THE BRANCH'S <u>IFSC CODE</u></b>	
<b>IS THE BRANCH IS ALSO NEFT ENABLED ?</b>	
<b>TYPE OF ACCOUNT (SB/CURRENT/CASH CREDIT)</b>	
<b>COMPLETE BANK ACCOUNT NUMBER</b>	

**DATE OF EFFECT:** \_\_\_\_\_

I hereby declare that the particulars given above are correct and complete. If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, I would not hold the APSPCL responsible.

**Signature of Contractor**

Date:

Certified that the particulars furnished above are correct as per our records.

**Signature of Banker**

(Bank's Stamp)

Date:



## **INTEGRITY PACT**

Between

**Andhra Pradesh Solar Power Corporation Private Limited** hereinafter referred to as "**APSPCL**",

And

..... herein after referred to as "**The Bidder / Contractor**"

The APSPCL intends to call tenders and award the work under laid down organizational procedures, contract/s for the work of "**APSPCL – Galiveedu Solar Park – LAD works – Formation of embankment at veligallu village to provide approach to the farmers to balance agriculture land.**"

The APSPCL and the Bidders shall value the full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness / transparency in bidding and as well as execution of contracts and both the parties shall adhere to the following.

### **1. Commitments of the APSPCL**

- a. No employee of the APSPCL, personally or through family members, will in connection with the tender or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
- b. The APSPCL will, during the tender process treat all Bidder(s) with equity and reason. The APSPCL will in particular, before *and* during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.

### **2. Commitments of the Bidder(s)/ contractor(s)**

- a. The Bidder(s) / Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the APSPCL's employees involved in the tender process or the execution of the contract or to any third person any material or other benefit which he/ she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
- b. The Bidder(s) / Contractor(s) will not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- c. The Bidder(s) / Contractor(s) will not commit any offence under the relevant IPC/PC Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the APSPCL as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

3. If the Bidder(s)/Contractor(s), before award or during execution commits a transgression through a violation of clause 2, above or in any other form such as to put his reliability or credibility in question, the APSPCL is entitled to disqualify the Bidder(s)/Contractor(s) from the tender process and exclusion in future tenders.
4. If the APSPCL disqualifies the Bidder(s) from the tender process prior to the award as per clause 3 above, the APSPCL is entitled to demand and recover the damages equivalent to Earnest Money Deposit/ Bid Security.
5. If the APSPCL terminates the contract or if the APSPCL is entitled to terminate the contract according clause 3 above, the APSPCL shall be entitled to demand and recover from the contractor liquidated damages of the Contract value or the amount equivalent to Performance Guarantee.
6. The Bidder(s)/ Contractor(s) undertake(s) to demand from all subcontractors a commitment in conformity with this Integrity Pact.
7. The Integrity Pact begins from the date of tender notification and expires after the contractor receives the last payment under the contract.

\_\_\_\_\_  
(For & On behalf of the APSPCL)

(Office Seal)

\_\_\_\_\_  
(For & On behalf of Bidder/ Contractor)

(Office Seal)

Place -----

Date -----

Witness 1 :  
(Name & Address)

Witness 2 :  
(Name & Address)

## **305. EMBANKMENT CONSTRUCTION**

### **305.1. General**

**305.1.1. Description :** These Specifications shall apply to the construction of embankments including subgrades, earthen shoulders and miscellaneous backfills with approved material obtained from roadway and drain excavation, borrow pits or other sources. All embankments, subgrades, earthen shoulders and miscellaneous backfills shall be constructed in accordance with the requirements of these Specifications and in conformity with the lines, grades, and cross-sections shown on the drawings or as directed by the Engineer.

### **305.2. Materials and General Requirements**

#### **305.2.1. Physical requirements:**

**305.2.1.1.** The materials used in embankments, subgrades, earthen shoulders and miscellaneous backfills shall be soil, moorum, gravel, a mixture of these or any other material approved by the Engineer. Such materials shall be free of logs, stumps, roots, rubbish or any other ingredient likely to deteriorate or affect the stability of the embankment/ subgrade.

The following types of material shall be considered unsuitable for embankment:

- (a) Materials from swamps, marshes and bogs;
- (b) Peat, tog, stump and perishable material; any soil that classifies as OL, OI, OH or Pt in accordance with IS : 1498;
- (c) Materials susceptible to spontaneous combustion;
- (d) Materials in a frozen condition;
- (e) Clay having liquid limit exceeding 70 and plasticity index exceeding 45: and
- (f) Materials with salts resulting in leaching in the embankment.

**305.2.1.2.** Expansive clay exhibiting marked swell and shrinkage properties ("free swelling index" exceeding 50 per cent when tested as per IS: 2720 - Part 40) shall not be used as a fill material. Where an expansive clay with acceptable "free swelling index" value is used as a fill material, subgrade and top 500 mm portion of the embankment just below subgrade shall be non-expansive in nature.

**305.2.1.3.** Any fill material with a soluble sulphate content exceeding 1.9 grams of sulphate (expressed as  $\text{SO}_3$ ) per litre when tested in accordance with BS : 1377 Test 10, but using a 2:1 water-soil ratio shall not be deposited within 500 mm or other distance described in the Contract, of concrete, cement bound materials or other cementitious materials forming part of the Permanent Works.

Materials with a total sulphate content (expressed as  $\text{SO}_3$ ) exceeding 0.5 per cent by mass, when tested in accordance with BS : 1377 Test 9 shall not be deposited within 500 mm, or other distances described in the Contract, of metallic items forming part of the Permanent Works.

**305.2.1.4.** The size of the coarse material in the mixture of earth shall ordinarily not exceed 75 mm when being placed in the embankment and 50 mm when placed in the subgrade. However, the Engineer may at his discretion permit the use of material coarser

than this also if he is satisfied that the same will not present any difficulty as regards the placement of fill material and its compaction to the requirements of these Specifications. The maximum particle size shall not be more than two-thirds of the compacted layer thickness.

**305.2.1.5.** Ordinarily, only the materials satisfying the density requirements given in Table 300-1 shall be employed for the construction of the embankment and the subgrade.

**TABLE 300-1. DENSITY REQUIREMENTS OF EMBANKMENT AND SUBGRADE MATERIALS**

S. No.	Type of Work	Maximum laboratory dry unit weight when tested as per IS: 2720 (Part 8)
1.	Embankments up to 3 metres height, not subjected to extensive flooding.	Not less than 15.2 kN/cu.m.
2.	Embankments exceeding 3 metres height or embankments of any height subject to long periods of inundation	Not less than 16.0 kN/cu.m.
3.	Subgrade and earthen shoulders/verges/backfill	Not less than 17.5 kN/cu.m.

- Notes: (1) This Table is not applicable for lightweight fill material e.g. cinder, fly ash etc.
- (2) The Engineer may relax these requirements at his discretion taking into account the availability of materials for construction and other relevant factors.
- (3) The material to be used in subgrade should also satisfy design CBR at the dry unit weight applicable as per Table 300-2.

**305.2.2. General requirements :**

**305.2.2.1.** The materials for embankment shall be obtained from approved sources with preference given to materials becoming available from nearby roadway excavation or any other excavation under the same.

The work shall be so planned and executed that the best available materials are saved for the subgrade and the embankment portion just below the subgrade.

**305.2.2.2. Borrow materials :** Where the materials are to be obtained from designated borrow areas, the location, size and shape of these areas shall be as indicated by the Engineer and the same shall not be opened without his written permission. Where specific borrow areas are not designated by the Employer/the Engineer, arrangement for locating the source of supply of material for embankment and subgrade as well as compliance to environmental requirements in respect of excavation and borrow areas as stipulated, from time to time by the Ministry of Environment and Forests, Government of India and the local bodies, as applicable, shall be the sole responsibility of the Contractor.

Borrowpits along the road shall be discouraged. If permitted by the Engineer, these shall not be dug continuously. Ridges of not less than 8 m width should be left at intervals not exceeding 300 m. Small drains shall be cut through the ridges to facilitate drainage. The depth of the pits shall be so regulated that their bottom does not cut an imaginary line having a slope of 1 vertical to 4 horizontal projected from the edge of the final section of the bank, the maximum depth in any case being limited to 1.5 m. Also, no pit shall be dug within the offset width from the toe of the embankment required as per the consideration of stability with a minimum width of 10 m.

Haulage of material to embankments or other areas of fill shall proceed only when sufficient spreading and compaction plant is operating at the place of deposition.

No excavated acceptable material other than surplus to requirements of the Contract shall be removed from the site. Should the Contractor be permitted to remove acceptable material from the site to suit his operational procedure, then he shall make good any consequent deficit of material arising therefrom.

Where the excavation reveals a combination of acceptable and unacceptable materials, the Contractor shall, unless otherwise agreed by the Engineer, carry out the excavation in such a manner that the acceptable materials are excavated separately for use in the permanent works without contamination by the unacceptable materials. The acceptable materials shall be stockpiled separately.

The Contractor shall ensure that he does not adversely affect the Stability of excavation or fills by the methods of stockpiling materials, IBC of plants or siting of temporary buildings or structures.

The Contractor shall obtain representative samples from each of the identified borrow areas and have these tested at the site laboratory following a testing programme approved by the Engineer. It shall be ensured that the subgrade material when compacted to the density requirements as in Table 300-2 shall yield the design CBR value of the subgrade.

**TABLE 300-2. COMPACTION REQUIREMENTS FOR EMBANKMENT AND SUBGRADE**

<b>Type of work/ material</b>	<b>Relative compaction as percentage of max. laboratory dry density as per IS: 2720 (Part 8)</b>
1. Subgrade and earthen shoulders	Not less than 97
2. Embankment	Not less than 95
3. Expansive Clays	
a) Subgrade and 500 mm portion just below the subgrade	Not allowed
b) Remaining portion of embankment	Not less than 90

The Contractor shall at least 7 working days before commencement of compaction submit the following to the Engineer for approval:

- (i) The value of maximum dry density and optimum moisture content obtained in accordance with IS: 2720 (Part 7) or (Part 8), as the case may be, appropriate for each of the fill materials he intends to use.
- (ii) A graph of density plotted against moisture content from which each of the values in (i) above of maximum dry density and optimum moisture

content were determined.

- (iii) The Dry density-moisture content -CBR relationships for light, intermediate and heavy compactive efforts (light corresponding to IS: 2720 (Part 7). heavy corresponding to IS: 2720 (Part 8) and intermediate in-between the two) for each of the fill materials he intends to use in the subgrade.

Once the above information has been approved by the Engineer, it shall form the basis for compaction.

### **305.3. Construction Operations**

**305.3.1. Setting out :** After the site has been cleared to Clause 201, the work shall be set out to Clause 301.3.1. The limits of embankment/subgrade shall be marked by fixing batter pegs on both at regular intervals as guides before commencing the earthwork, embankment/subgrade shall be built sufficiently wider than the design dimension so that surplus material may be trimmed, ensuring that the remaining material is to the desired density and in position specified and conforms to the specified side slopes.

**305.3.2. Dewatering :** If the foundation of the embankment is in an area with stagnant water, and in the opinion of the Engineer it is feasible to remove it, the same shall be removed by bailing out or pumping, as directed by the Engineer and the area of the embankment foundation shall be kept dry. Care shall be taken to discharge the drained water so as not to cause damage to the works, crops or any other property. Due to any negligence on the part of the Contractor, if any such damage is caused, it shall be the sole responsibility of the Contractor to repair/restore it to original condition or compensate the damage at his own cost.

If the embankment is to be constructed under water, Clause 305.4.6 shall apply.

**305.3.3. Stripping and storing topsoil :** In localities where most of the available embankment materials are not conducive to plant growth, or when so directed by the Engineer, the topsoil from all areas of cutting and from all areas to be covered by embankment foundation shall be stripped to specified depths not exceeding 150 mm and stored in stockpiles of height not exceeding 2 m for covering embankment slopes, cut slopes and other disturbed areas where re-vegetation is desired. Topsoil shall not be unnecessarily trafficked either before stripping or when in a stockpile. Stockpiles shall not be surcharged or otherwise loaded and multiple handling shall be kept to a minimum.

**305.3.4. Compacting ground supporting embankment/subgrade:** Where necessary, the original ground shall be levelled to facilitate placement of first layer of embankment, scarified, mixed with water and then compacted by rolling so as to achieve minimum dry density as given in Table 300-2.

In case where the difference between the subgrade level (top of the subgrade on which pavement rests) and ground level is less than 0.5 m and the ground does not have 97 per cent relative compaction with respect to the dry density as given in Table 300-2, the ground shall be loosened upto a level 0.5 m below the subgrade level, watered and compacted in layers in accordance with Clauses 305.3.5 and 305.3.6 to not less than 97 per cent of dry density as given in Table 300-2.

Where so directed by the Engineer, any unsuitable material occurring in the embankment foundation shall be removed and replaced by approved materials laid in layers to the required degree of compaction.

Embankment or subgrade work shall not proceed until the foundations for embankment/subgrade have been inspected by the Engineer for satisfactory condition and approved.

Any foundation treatment specified for embankments especially high embankments, resting on suspect foundations as revealed by borehole logs shall be carried out in a manner and to the depth as desired by the Engineer. Where the ground on which an embankment is to be built has any of the material types (a) to (f) in Clause 305.2.1, at least 500 mm of such material must be removed and replaced by acceptable fill material before embankment construction commences.

### **305.3.5. Spreading material in layers and bringing to appropriate moisture content**

**305.3.5.1.** The embankment and subgrade material shall be spread in layers of uniform thickness not exceeding 200 mm compacted thickness over the entire width of embankment by mechanical means, finished by a motor grader and compacted as per Clause 305.3.6. The motor grader blade shall have hydraulic control suitable for initial adjustment and maintain the same so as to achieve the specific slope and grade. Successive layers shall not be placed until the layer under construction has been thoroughly compacted to the specified requirements as in Table 300-2 and got approved by the Engineer. Each compacted layer shall be finished parallel to the final cross-section of the embankment.

**305.3.5.2.** Moisture content of the material shall be checked at the site of placement prior to commencement of compaction; if found to be out of agreed limits, the same shall be made good. Where water is required to be added in such constructions, water shall be sprinkled from a water tanker fitted with sprinkler capable of applying water uniformly with a controllable rate of flow to variable widths of surface but without any flooding. The water shall be added uniformly and thoroughly mixed in soil by blading, discing or harrowing until a uniform moisture content is obtained throughout the depth of the layer.

If the material delivered to the roadbed is too wet, it shall be dried, by aeration and exposure to the sun, till the moisture content is acceptable for compaction. Should circumstances arise, where owing to wet weather, the moisture content cannot be reduced to the required amount by the above procedure, compaction work shall be suspended.

Moisture content of each layer of soil shall be checked in accordance with IS: 2720 (Part 2), and unless otherwise mentioned, shall be so adjusted, making due allowance for evaporation losses, that at the time of compaction it is in the range of 1 per cent above to 2 per cent below the optimum moisture content determined in accordance with IS:2720 (Part 7) or IS:2720 (Part 8) as the case may be. Expansive clays shall however, be compacted at moisture content corresponding to the specified dry density, but on the wet side of the optimum moisture content obtained from the laboratory compaction curve.

After adding the required amount of water, the soil shall be processed by means of graders, harrows, rotary mixers or as otherwise approved by the Engineer until the layer is uniformly wet.

Clods or hard lumps of earth shall be broken to have a maximum size of 75 mm when being placed in the embankment and a maximum size of 50 mm when being placed in the subgrade.

**305.3.5.3.** Embankment and other areas of fill shall, unless otherwise required in the Contract or permitted by the Engineer, be constructed evenly over their full width and their fullest possible extent and the Contractor shall control and direct construction plant and other vehicular traffic uniformly over them. Damage by construction plant and other vehicular traffic shall be made good by the Contractor with material having the same characteristics and strength as the material had before it was damaged.

Embankments and other areas of unsupported fills shall not be constructed with steeper side slopes, or to greater widths than those shown in the Contract, except to permit adequate compaction at the edges before trimming back, or to obtain the final profile following any settlement of the fill and the underlying material.

Whenever fill is to be deposited against the face of a natural slope, or sloping earthworks face including embankments, cuttings, other fills and excavations steeper than 1 vertical on 4 horizontal, such faces shall be benched as per Clause 305.4.1 immediately before placing the subsequent fill.

All permanent faces of side slopes of embankments and other areas of fill formed shall, subsequent to any trimming operations, be reworked and sealed to the satisfaction of the Engineer by tracking a tracked vehicle, considered suitable by the Engineer, on the slope or any other method approved by the Engineer.

**305.3.6. Compaction :** Only the compaction equipment approved by the Engineer shall be employed to compact the different material types encountered during construction. Smooth wheeled, vibratory, pneumatic tyred, sheepsfoot or pad foot rollers, etc. of suitable size and capacity as approved by the Engineer shall be used for the different types and grades of materials required to be compacted either individually or in suitable combinations.

The compaction shall be done with the help of vibratory roller of 80 to 100 kN static weight with plain or pad foot drum or heavy pneumatic tyred roller of adequate capacity capable of achieving required compaction.

The Contractor shall demonstrate the efficacy of the equipment he intends to use by carrying out compaction trials. The procedure to be adopted for these site trials shall first be submitted to the Engineer for approval.

Earthmoving plant shall not be accepted as compaction equipment nor shall the use of a lighter category of plant to provide any preliminary compaction to assist the use of heavier plant be taken into account.

Each layer of the material shall be thoroughly compacted to the densities specified in Table 300-2. Subsequent layers shall be placed only after the finished layer has been tested according to Clause 903.2.2 and accepted by the Engineer. The Engineer may permit measurement of field dry density by a nuclear moisture/density gauge used in accordance with agreed procedure and the gauge is calibrated to provide results identical to that obtained from tests in accordance with IS: 2720 (Part 28). A record of the same shall be maintained by the Contractor.

When density measurements reveal any soft areas in the embankment/subgrade/earthen shoulders, further compaction shall be carried out as directed by the Engineer. If inspite of that the specified compaction is not achieved, the material in the soft areas shall be removed and replaced by approved material, compacted to the density requirements and satisfaction of the Engineer.



**305.3.7. Drainage :** The surface of the embankment/subgrade at all times during construction shall be maintained at such a cross fall (not flatter than that required for effective drainage of an earthen surface) as will shed water and prevent ponding.

**305.3.8. Repairing of damages caused by rain/spillage of water:** The soil in the affected portion shall be removed in such areas as directed by the Engineer before next layer is laid and refilled in layers and compacted using appropriate mechanical means such as small vibratory roller, plate compactor or power rammer to achieve the required density in accordance with Clause 305.3.6. If the cut is not sufficiently wide for use of required mechanical means for compaction the same shall be widened suitably to permit their use for proper compaction. Tests shall be carried out as directed by the Engineer to ascertain the density requirements of the repaired area. The work of repairing the damages including widening of the cut, if any, shall be carried out by the Contractor at his own cost, including the arranging of machinery/equipment for the purpose.

**305.3.9. Finishing operations :** Finishing operations shall include the work of shaping and dressing the shoulders/verge/roadbed and side slopes to conform to the alignment, levels, cross-sections and dimensions shown on the drawings or as directed by the Engineer subject to the surface tolerance described in Clause 902. Both the upper and lower ends of the side slopes shall be rounded off to improve appearance and to merge the embankment with the adjacent terrain.

The topsoil, removed and conserved carrier (Clause 301.3.2 and 305.3.3) shall be spread over the fill slopes as per directions of the Engineer to facilitate the growth of vegetation. Slopes shall be roughened and moistened slightly prior to the application of the topsoil in order to provide satisfactory bond. The depth of the topsoil shall be sufficient to sustain plant growth, the usual thickness being from 75 mm to 150 mm.

Where directed, the slopes shall be turfed with sods in accordance with Clause 307. If seeding and mulching of slopes is prescribed, this shall be done to the requirement of Clause 308.

When earthwork operations have been substantially completed, the road area shall be cleared of all debris, and ugly scars in the construction area responsible for objectionable appearance eliminated.

#### **305.4. Construction of Embankment and Subgrade under Special Conditions**

**305.4.1. Earthwork for widening existing road embankment:** When an existing embankment and/or subgrade is to be widened and its slopes are steeper than 1 vertical on 4 horizontal, continuous horizontal benches, each at least 300 mm wide, shall be cut into the old slope for ensuring adequate bond with the fresh embankment/subgrade material to be added. The material obtained from cutting of benches could be utilized in the widening of the embankment/subgrade. However, when the existing slope against which the fresh material is to be placed is flatter than 1 vertical on 4 horizontal, the slope surface may only be ploughed or scarified instead of resorting to benching.

Where the width of the widened portions is insufficient to permit the use of conventional rollers, compaction shall be carried out with the help of small vibratory rollers/plate compactors/power rammers or any other appropriate equipment approved by the Engineer. End dumping of material from trucks for widening operations shall be avoided except in difficult circumstances when the extra width is too narrow to permit the movement of any other types of hauling equipment.

**305.4.2. Earthwork for embankment and subgrade to be placed against sloping ground :** Where an embankment/subgrade is to be placed against sloping ground, the latter shall be appropriately benched or ploughed/scarified as required in Clause 305.4.1 before placing the embankment/subgrade material. Extra earthwork involved in benching or due to ploughing/scarifying etc. shall be considered incidental to the work.

For wet conditions, benches with slightly inward fall and subsoil drains at the lowest point shall be provided as per the drawings, before the fill is placed against sloping ground.

Where the Contract requires construction of transverse subsurface drain at the cut-fill interface, work on the same shall be carried out to s 309 in proper sequence with the embankment and subgrade work; approved by the Engineer.

**305.4.3. Earthwork over existing road surface :** Where the embankment is to be placed over an existing road surface, the work shall be carried out as indicated below :

- (i) If the existing road surface is of granular or bituminous type and lies within 1 m of the new subgrade level, the same shall be scarified to a depth of 50 mm or more if specified, so as to provide ample bond between the old and new material ensuring that at least 500 mm portion below the top of new subgrade level is compacted to the desired density.
- (ii) If the existing road surface is of cement concrete type and lies within 1m of the new subgrade level the same shall be removed completely.
- (iii) If the level difference between the existing road surface and the new formation level is more than 1m, the existing surface shall be permitted to stay in place without any modification.

**305.4.4. Embankment and subgrade around structures :** To avoid interference with the construction of abutments, wing walls or return walls of culvert/bridge structures, the Contractor shall, at points to be determined by the Engineer suspend work on embankment forming approaches to such structures, until such time as the construction of the latter is sufficiently advanced to permit the completion of approaches without the risk of damage to the structure.

Unless directed otherwise, the filling around culverts, bridges and other structures upto a distance of twice the height of the road from the back of the abutment shall be carried out independent of the work on the main embankment. The fill material shall not be placed against any abutment or wing wall, unless permission has been given by the Engineer but in any case not until the concrete or masonry has been in position for 14 days. The embankment and subgrade shall be brought up simultaneously in equal layers on each side of the structure to avoid displacement and unequal pressure. The sequence of work in this regard shall be got approved from the Engineer.

The material used for backfill shall not be an organic soil or highly plastic clay having plasticity index and liquid limit more than 20 and 40 respectively when tested according to IS : 2720 (Part 5). Filling behind abutments and wing walls for all structures shall conform to the general guidelines given in Appendix 6 of IRC:78 (Standard Specifications and Code of Practice for Road Bridges-Section VII) in respect of the type of material, the extent of backfill, its laying and compaction etc. The fill material shall be deposited in horizontal layers in loose thickness and compacted thoroughly to the requirements of Table 300-2.

Where the provision of any filter medium is specified behind the abutment, the same shall be laid in layers simultaneously with the laying of fill material. The material

used for filter shall conform to the requirements for filter medium spelt out in Clause 2502/309.3.2 (B) unless otherwise specified in the Contract.

Where it may be impracticable to use conventional rollers, the compaction shall be carried out by appropriate mechanical means such as small vibratory roller, plate compactor or power rammer. Care shall be taken to see that the compaction equipment does not hit or come too close to any structural member so as to cause any damage to them or excessive pressure against the structure.

**305.4.5. Construction of embankment over ground incapable of supporting construction equipment :** Where embankment is to be constructed across ground which will not support the weight of repeated heavy loads of construction equipment the first layer of the fill may be constructed by placing successive loads of material in a uniformly distributed layer of a minimum thickness required to support the construction equipment as permitted by the Engineer. The Contractor, if so desired by him, may also use suitable geosynthetic material to increase the bearing capacity of the foundation. This exception to normal procedure will not be permitted where, in the opinion of the Engineer, the embankments could be constructed in the approved manner over such ground by the use of lighter or modified equipment after proper ditching and drainage have been provided. Where this exception is permitted, the selection of the material and the construction procedure to obtain an acceptable layer shall be the responsibility of the Contractor. The cost of providing suitable traffic conditions for construction equipment over any area of the Contract will be the responsibility of the Contractor and no extra payment will be made to him. The remainder of the embankment shall be constructed as specified in Clause 305.3.

**305.4.6. Embankment construction underwater :** Where filling or backfilling is to be placed under water, only acceptable granular material or rock shall be used unless otherwise approved by the Engineer. Acceptable granular material shall consist of graded, hard durable particles with maximum particle size not exceeding 75 mm. The material should be non-plastic having uniformity coefficient of not less than 10. The material placed in open water shall be deposited by end tipping without compaction.

**305.4.7. Earthwork for high embankment :** In the case of high embankments, the Contractor shall normally use the material the specified borrow area. In case he desires to use different for his own convenience, he shall have to carry out necessary investigations and redesign the high embankment at his own cost. Contractor shall then furnish the soil test data and design of high embankment for approval of the Engineer, who reserves the right to accept or reject it.

If necessary, stage construction of fills and any controlled rates; shall be carried out in accordance with the Contract including of instruments and its monitoring.

Where required, the Contractor shall surcharge embankments or other of fill with approved material for the periods specified in the ct If settlement of surcharged fill results in any surcharging material, which is unacceptable for use in the fill being surcharged, lying below formation level, the Contractor shall remove the unacceptable material and dispose it as per direction of the Engineer. He shall then bring the resultant level up to formation level with acceptable material.

**305.4.8. Settlement period :** Where settlement period is specified in the Contract, the embankment shall remain in place for the required settlement period before

excavating for abutment, wingwall, retaining wall, footings, etc., or driving foundation piles. The duration of the required settlement period at each location shall be as provided for in the Contract or as directed by the Engineer.

### **305.5. Plying of Traffic**

Construction and other vehicular traffic shall not use the prepared surface of the embankment and/or subgrade without the prior permission of the Engineer. Any damage arising out of such use shall, however, be made good by the Contractor at his own expense as directed by the Engineer.

### **305.6. Surface Finish and Quality Control of Work**

The surface finish of construction of subgrade shall conform to the requirements of Clause 902. Control on the quality of materials and works shall be exercised in accordance with Clause 903.

### **305.7. Subgrade Strength**

**305.7.1.** It shall be ensured prior to actual execution that the borrow area material to be used in the subgrade satisfies the requirements of design CBR.

**305.7.2.** Subgrade shall be compacted and finished to the design strength consistent with other physical requirements. The actual laboratory CBR values of constructed subgrade shall be determined on undisturbed samples cut out from the compacted subgrade in CBR mould fitted with cutting shoe or on remoulded samples, compacted to the field density at the field moisture content.

### **305.8. Measurements for Payment**

Earth embankment/subgrade construction shall be measured separately by taking cross sections at intervals in the original position before the work starts and after its completion and computing the volumes of earthwork in cubic metres by the method of average end areas.

The measurement of fill material from borrow areas shall be the difference between the net quantities of compacted fill and the net of suitable material brought from roadway and drainage excavation. For this purpose, it shall be assumed that one cu.m. of suitable material brought to site from road and drainage excavation forms one cu.m. of compacted fill and all bulking or shrinkage shall be ignored.

Construction of embankment under water shall be measured in cu.m.

Construction of high embankment with specified material and in specified manner shall be measured in cu.m.

Stripping including storing and reapplication of topsoil shall be measured in cu.m.

Work involving loosening and recompacting of ground supporting embankment/subgrade shall be measured in cu. m.

Removal of unsuitable material at embankment/subgrade foundation and replacement with suitable material shall be measured in cu.m.

Scarifying existing granular/bituminous road surface shall be measured in square metres.

Dismantling and removal of existing cement concrete pavement shall be measured vide Clause 202.6.

Filter medium and backfill material behind abutments, wing walls Other retaining structures shall be measured as finished work in position in cu.m.

### **305.9. Rates**

**305.9.1.** The Contract unit rates for the items of embankment and construction shall be payment in full for carrying out the operations including full compensation for:

- (i) Cost of arrangement of land as a source of supply of material of required quantity for construction unless provided otherwise in the Contract;
- (ii) Selling out;
- (iii) Compacting ground supporting embankment/subgrade except where removal and replacement of unsuitable material or loosening and recompacting is involved;
- (iv) Scarifying or cutting continuous horizontal benches 300 mm wide on side slopes of existing embankment and subgrade as applicable;
- (v) Cost of watering or drying of material in borrow areas and/or embankment and subgrade during construction as required;
- (vi) Spreading in layers, bringing to appropriate moisture content and compacting to Specification requirements;
- (vii) Shaping and dressing top and slopes of the 'embankment and sabgrade including rounding of comers;
- (viii) Restricted working at sites of structures;
- (ix) Working on narrow width of embankment and subgrade;
- (x) Excavation in all soils from borrow pits/designated borrow areas including clearing and grubbing and transporting the material to embankment and subgrade site with all lifts and leads unless otherwise provided for in the Contract;
- (xi) All labour, materials, tools, equipment and incidentals necessary to complete the work to the Specifications;
- (xii) Dewatering; and
- (xiii) Keeping the embankment/completed formation free of water as per Clause 311.

**305.9.2.** In case the Contract unit rate specified is not inclusive of all leads, the unit rate for transporting material beyond the initial lead, as specified in the Contract for construction of embankment and subgrade shall be inclusive of full compensation for all labour, equipment, tools and incidentals necessary on account of the additional haul or transportation involved beyond the specified initial lead.

**305.9.3.** Clause 301.9.5 shall apply as regards Contract unit rates for items of stripping and storing top soil and of reapplication of topsoil.

**305.9.4.** Clause 301.9.2 shall apply as regards Contract unit rate for the item of loosening and recompacting the embankment/subgrade foundation.

**305.9.5.** Clauses 301.9.1 and 305.8 shall apply as regards Contract rates for items of removal of unsuitable material and replacement with suitable material respectively.

**305.9.6.** The Contract unit rate for scarifying existing granular/bituminous road surface shall be payment in full for carrying out the required operations including full compensation for all labour, materials, tools, equipment and incidentals necessary to complete the work. This will also comprise of handling, salvaging, stacking and disposing of the dismantled materials within all lifts and upto a lead of 1000 m or as otherwise specified.

**305.9.7.** Clause 202.7 shall apply as regards Contract unit rate for dismantling and removal of existing cement concrete pavement.

**305.9.8.** The Contract unit rate for providing and laying filter material behind abutments shall be payment in full for carrying out the required operations including all materials, labour, tools, equipment and incidentals to complete the work to specifications.

**305.9.9.** Clause 305.4,6 shall apply as regards Contract unit rate for construction of embankment under water.

**305.9.10.** Clause 305.4.7 shall apply as regards Contract unit rate for construction of high embankment. It shall include cost of instrumentation, its monitoring and settlement period, where specified in the Contract or directed by the Engineer.